



PENGARUH PERBEDAAN JENIS SUSU DAN GARAM KALSIMUM TERHADAP KUALITAS FISIK DAN KIMIA KEJU SEGAR

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INTISARI

Diversifikasi susu masih terbatas dan perlu diperbanyak produk olahan yang ada sehingga terjadi peningkatan konsumsi susu. Penelitian ini bertujuan untuk mengetahui pengaruh perbedaan jenis susu, jenis, dan konsentrasi garam kalsium terhadap karakteristik fisik dan kimia keju segar. Bahan yang digunakan dalam penelitian ini adalah susu Sapi Friesian Holstein (FH), susu Kambing Kacang, kalsium klorida (CaCl_2), kalsium karbonat (CaCO_3), dan *rennet*. Pengujian yang dilakukan yaitu mencakup uji kualitas susu segar dan uji fisik kimia keju segar. Rancangan yang digunakan yaitu Rancangan Acak Lengkap (RAL) pola faktorial ($2 \times 2 \times 3$). Perlakuan yang diberikan yaitu dua jenis susu (susu Sapi Friesian Holstein serta susu Kambing Kacang), perlakuan dua jenis garam kalsium (CaCl_2 dan CaCO_3) dan konsentrasi garam kalsium (0, 10, 20 mg/100ml susu). Kualitas susu segar dan kualitas fisik keju segar dianalisis secara deskriptif dan kualitas kimia keju segar dianalisis dengan *Analysis of Variance* (ANNOVA) pada taraf signifikansi 5%. Penelitian ini bermanfaat sebagai informasi dan referensi tentang pengaruh perbedaan jenis susu, jenis, dan konsentrasi garam kalsium terhadap karakteristik fisik dan kimia keju segar. Hasil penelitian menunjukkan bahwa susu sapi dan susu kambing memiliki kualitas yang baik sesuai dengan kisaran normal. Sineresis pada keju susu sapi lebih tinggi dibandingkan keju susu kambing. Rendemen keju susu sapi lebih rendah dibandingkan rendemen keju susu kambing. Nilai pH keju susu sapi lebih rendah daripada keju susu kambing. Nilai pH keju dengan penambahan kalsium klorida memiliki nilai yang lebih rendah dibandingkan keju dengan penambahan kalsium karbonat. Jenis susu sebagai bahan baku berpengaruh ($p < 0,05$) terhadap kadar air dan kadar abu. Konsentrasi garam kalsium berpengaruh ($p > 0,05$) terhadap kadar protein keju. Terdapat interaksi jenis susu dan garam kalsium yang berpengaruh ($p < 0,05$) terhadap kadar protein. Kesimpulan yang didapatkan yaitu perbedaan jenis susu mempengaruhi rendemen, sineresis, nilai pH, kadar air dan kadar abu. Perbedaan jenis garam kalsium mempengaruhi nilai pH keju. Perbedaan konsentrasi garam kalsium mempengaruhi kadar protein keju.

Kata kunci: fisikokimia, garam kalsium, keju, susu kambing, susu sapi



THE EFFECT OF DIFFERENT TYPES OF MILK AND CALCIUM SALT ON THE PHYSICAL AND CHEMICAL QUALITIES OF FRESH CHEESE

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ABSTRACT

Diversification of milk products remains limited, and there is a need to increase the variety of processed milk products to boost milk consumption. This study aims to investigate the influence of different types of milk, types, and concentrations of calcium salts on the physical and chemical characteristics of fresh cheese. The materials used in this research include Friesian Holstein (FH) cow's milk, Kacang Goat's milk, calcium chloride (CaCl_2), calcium carbonate (CaCO_3), and rennet. The tests cover the quality testing of fresh milk and the physical and chemical testing of fresh cheese. The design used was a *Complete Randomized Design* (CRD) with a factorial pattern ($2 \times 2 \times 3$). The treatments included two types of milk (Friesian Holstein cow's milk and Kacang goat's milk), two types of calcium salts (CaCl_2 and CaCO_3), and calcium salt concentrations (0, 10, 20 mg/100ml milk). The quality of fresh milk and the physical quality of fresh cheese were analyzed descriptively, while the chemical quality of fresh cheese was analyzed using *Analysis of Variance* (ANOVA) at a 5% significance level. This research provided valuable information and references on the effects of different types of milk, types, and concentrations of calcium salts on the physical and chemical characteristics of fresh cheese. The results showed that both cow's milk and goat's milk had good quality within the normal range. Syneresis in cow's milk cheese was higher compared to goat's milk cheese. The yield of cow's milk cheese was lower than that of goat's milk cheese. The pH value of cow's milk cheese was lower than that of goat's milk cheese. Cheese with added calcium chloride had a lower pH value compared to cheese with added calcium carbonate. The type of milk significantly affected ($p < 0.05$) the moisture and ash content. The concentration of calcium salts significantly affected ($p > 0.05$) the protein content of the cheese. There was an interaction between the type of milk and calcium salts that significantly affected ($p < 0.05$) the protein content. The conclusion drawn was that the type of milk influenced the yield, syneresis, pH value, moisture content, and ash content. The type of calcium salt affected the pH value of the cheese. The concentration of calcium salts affected the protein content of the cheese.

Keywords: calcium salts, cheese, cow's milk, goat's milk, physico-chemical